HOLLOW CONCRETE FLOORS.

(PATENTED)

J. & W. STEWART,
ESTABLISHED 1874

Contractors,

SPECIALISTS IN REINFORCED CONCRETE,

Head Office:
12, BERKELEY STREET, LONDON, W.1.

The STEWART HOLLOW CONCRETE FLOOR is the outcome of a long experience in constructing concrete floors. Price is not sacrificed to strength and we claim that on its merits there is no cheaper floor obtainable.

TEMPORARY TIMBER SHUTTERING is eliminated.

ERECTION is rapid, as several floors can be completed at the same time.

WIDE RANGE OF VARIOUS SIZED BLOCKS reduces concrete mixed on the site to a minimum.

REINFORCEMENT cannot be displaced and bars are visible before concrete is laid.

SOUND RESISTING and FIREPROOF to pass 1A. Standard of the Fire Offices' Committee if necessary.

DESIGNS as required TO L.C.C. REGULATIONS, R.I.B.A. Specification or Local Conditions.

DEAD WEIGHT is exceptionally low, thus reducing the cost of beams and columns and the loads on foundations, etc.

ADAPTABLE for openings and trimmings to offsets, splayed walls, or reconstruction.

SOFFIT is flat and roughed for plaster, or can be left for limewashing only.

TESTS. A recent certified test on two 15′0″ spans with 4′6″ cantilevers, for a specified load of 3 cwts. per square foot, and a deflection limited to 1/600th of the span gave a load of 6 cwts. per square foot and a deflection of 1/1500th of the span without any fractures or cracks.

GUARANTEED SAFE FLOORS are a feature in which we specialise.

How a Stewart Hollow Concrete Floor is Constructed.

1. Two reinforcement bars provided with nuts and threads at each end are laid side by side, their distance apart being fixed by an end washer plate with holes in same through which the ends of reinforcement bars must pass.

2. A series of hollow concrete blocks are assembled between the two reinforcement bars (*see top photo*).

3. The nuts on the bars are tightened against the washer plates and the blocks firmly strung together.

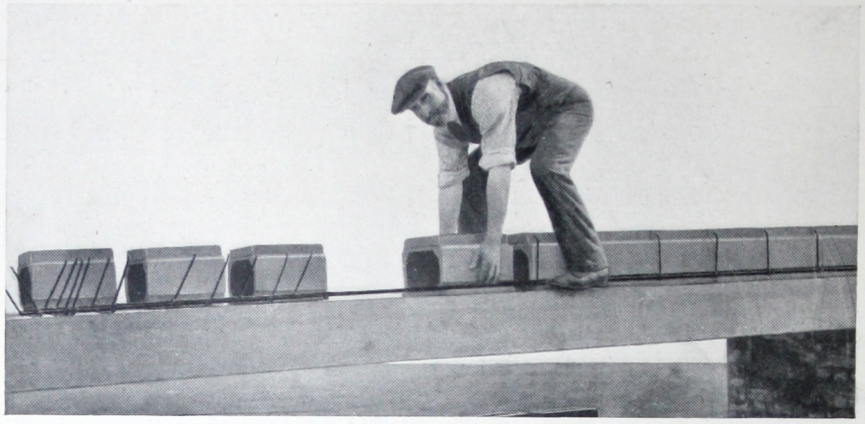
4. A complete hollow beam is thus formed and swung or slid into the required position *(see centre photo)*.

5. The floor can now be used for temporary purposes such as the assembling of further units. *(Note the men standing on the hollow beam in bottom photo).*

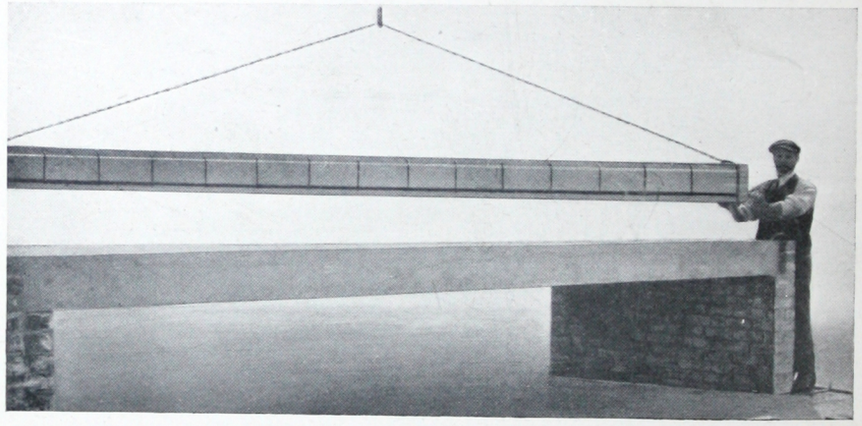
6. After a series of hollow beams have been laid side by side the space between is filled with concrete and solid "T" beams are made between the blocks *(see "Cross Section," opposite page)*. When the concrete has thoroughly set, which usually takes 3 to 4 weeks, the floor is ready for use.

7. All "T" beams have a standard distance apart of 15″ C. to C. This can be slightly varied if necessary.

8. For contracts abroad or at a long distance from railway station we can manufacture the blocks on the site, thus keeping the cost at the lowest possible figure.



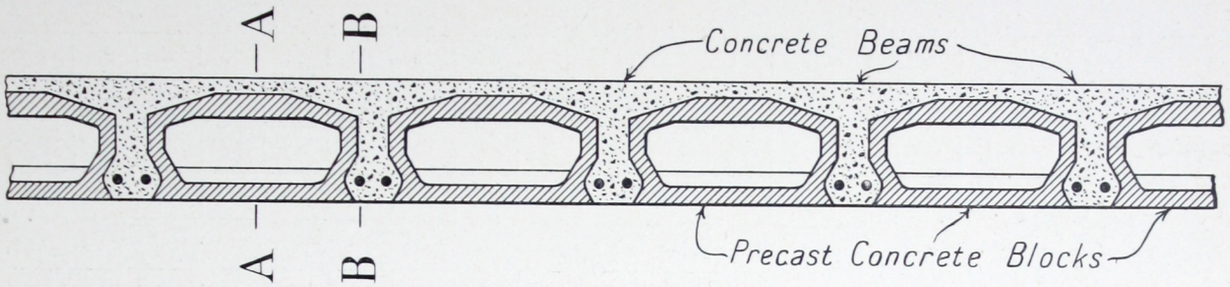
ASSEMBLING THE BLOCKS TO FORM HOLLOW BEAM.



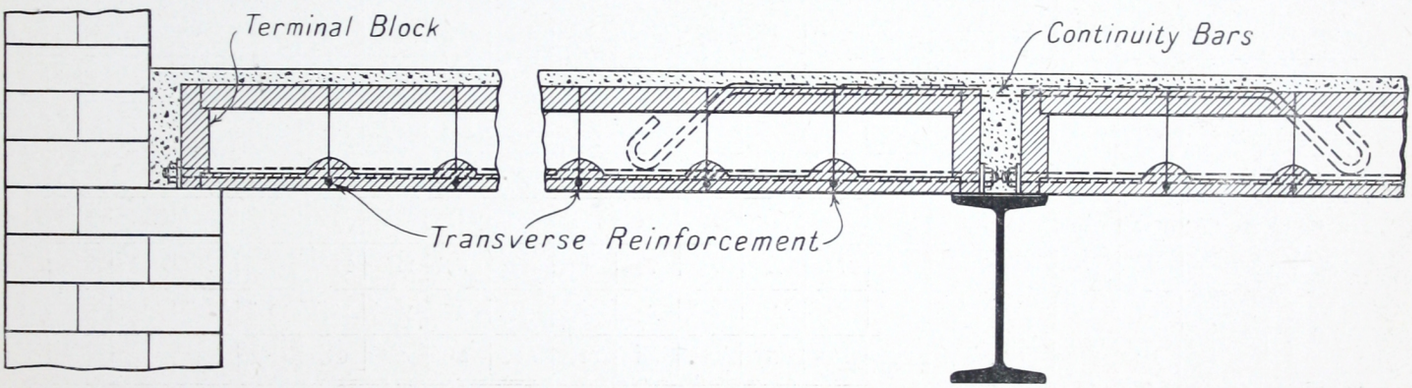
PLACING HOLLOW BEAM IN POSITION.

HOLLOW BEAM IN POSITION SHOWING THE REINFORCEMENT, END PLATES AND SIDE GROOVES IN BLOCKS.

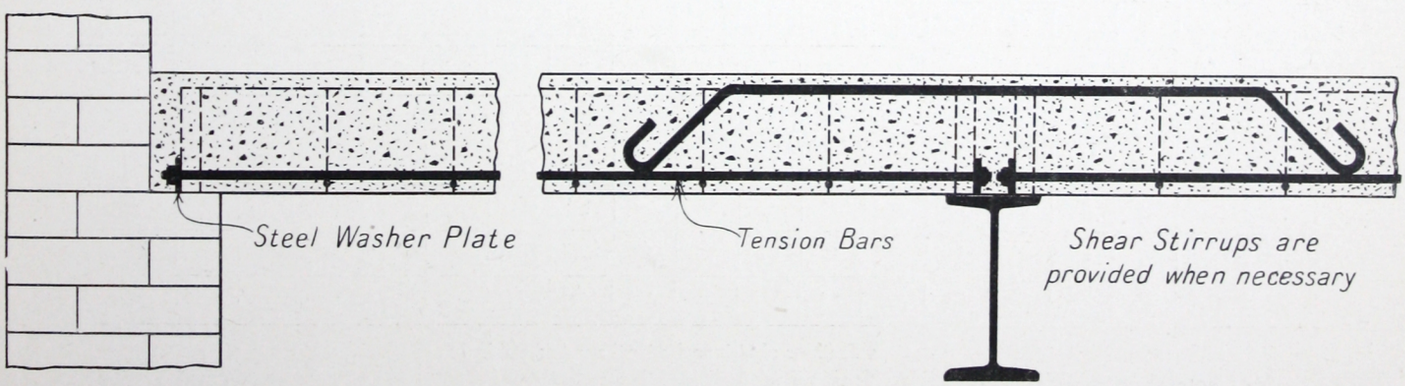
The Stewart Hollow Concrete Floor.



Cross Section



Longitudinal Section at A.A.



Longitudinal Section at B.B.

Note the simplicity of the reinforcement and the continuous concrete beam.

THE STEWART HOLLOW CONCRETE FLOOR.

Table giving Depths of Floors and Particulars for Various Loads and Spans with Ends Freely Supported.

FLOORS OR ROOFS.—LIVE LOAD 56 LBS. PER SQ. FT.

Span in Feet	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Depth of Floor	5″	5″	5″	5″	5¼″	5¼″	5½″	5⅝″	7″	7¼″	7½″	7⅜″	9″	9¼″	9½″	9⅜″	11″	11¼″	11⅜″
Depth of Block	4½″	4½″	4½″	4½″	4½″	4½″	4½″	4½″	6½″	6½″	6½″	6½″	8½″	8½″	8½″	8½″	10½″	10½″	10½″
Dead Weight of Floor with Reinforcement. (lbs. per sq. ft.)	34¼	34¼	34¼	34¼	37¼	37¼	40½	43½	42½	45½	48⅜	52	51⅜	54⅜	58	61	62⅜	65⅜	72

DOMESTIC BUILDINGS, ETC.—LIVE LOAD 70 LBS. PER SQ. FT.

Span in Feet	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Depth of Floor	5″	5″	5″	5″	5¼″	5½″	6″	7″	7¼″	7½″	7⅜″	9″	9¼″	9½″	11″	11¼″	11½″	11⅜″	12″
Depth of Block	4½″	4½″	4½″	4½″	4½″	4½″	4½″	6½″	6½″	6½″	6½″	8½″	8½″	8½″	10½″	10½″	10½″	10½″	10½″
Dead Weight of Floor with Reinforcement. (lbs. per sq. ft.)	34¼	34¼	34¼	34¼	37¼	40½	46⅜	42½	45½	48⅜	52	51⅜	54⅜	58	62⅜	65⅜	69	72	75¼

HOSPITAL & WORKHOUSE WARDS, HOTEL BEDROOMS, ETC.—LIVE LOAD 84 LBS. PER SQ. FT.

Span in Feet	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Depth of Floor	5″	5″	5″	5¼″	5½″	5⅜″	6″	7¼″	7½″	7⅜″	9″	9¼″	9½″	9⅜″	11¼″	11½″	11⅜″	12″
Depth of Block	4½″	4½″	4½″	4½″	4½″	4½″	4½″	6½″	6½″	6½″	8½″	8½″	8½″	8½″	10½″	10½″	10½″	10½″
Dead Weight of Floor with Reinforcement. (lbs. per sq. ft.)	34¼	34¼	34¼	37¼	40½	43½	46⅜	45½	48⅜	52	51⅜	54⅜	58	61	65⅜	69	72	75¼

OFFICES, PUBLIC HALLS, WORKSHOPS, DEPARTMENT STORES, ETC.—LIVE LOAD 112 LBS. PER SQ. FT.

Span in Feet	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Depth of Floor	5″	5″	5¼″	5½″	5⅜″	7″	7¼″	7½″	7⅜″	9″	9¼″	9⅜″	11″	11¼″	11⅜″	12″
Depth of Block	4½″	4½″	4½″	4½″	4½″	6½″	6½″	6½″	6½″	8½″	8½″	8½″	10½″	10½″	10½″	10½″
Dead Weight of Floor with Reinforcement. (lbs. per sq. ft.)	34¼	34¼	37¼	40½	43½	42½	45½	48⅜	52	51⅜	54⅜	61	62⅜	65⅜	72	75¼

DRILL HALLS, BALL ROOMS, ETC.—LIVE LOAD 150 LBS. PER SQ. FT.

Span in Feet	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Depth of Floor	5″	5¼″	5½″	5⅜″	7″	7¼″	7⅜″	8″	9¼″	9½″	10″	11¼″	11⅜″	12″
Depth of Block	4½″	4½″	4½″	4½″	6½″	6½″	6½″	6½″	8½″	8½″	8½″	10½″	10½″	10½″
Dead Weight of Floor with Reinforcement. (lbs. per sq. ft.)	34¼	37¼	40½	43½	42½	45½	52	55	54⅜	58	64¼	65⅜	72	75¼

BOOK STORES, MUSEUMS, WAREHOUSES, ETC.—LIVE LOAD 224 LBS. PER SQ. FT.

Span in Feet	6	7	8	9	10	11	12	13	14	15	16
Depth of Floor	5¼″	5½″	6″	7⅜″	7½″	8″	9¼″	9⅜″	10″	11½″	11⅜″
Depth of Block	4½″	4½″	4½″	6½″	6½″	6½″	8½″	8½″	8½″	10½″	10½″
Dead Weight of Floor with Reinforcement. (lbs. per sq. ft.)	37¼	40½	46⅜	45½	48⅜	55	54⅜	61	64¼	69	72

The above tables have been checked by a Consulting Engineer of high professional standing and he has certified that they are correct.

A factor of safety of 4 has been employed and for continuous spans the tabulated loads may be increased by 50 per cent. of the Live and Dead Loads, for example:

Span of 10′ 0″ *with ends Freely Supported:*

Live Load	112 lbs. per sq. ft.	
Dead Weight of floor	56 ,, ,,	
Total load =	168 ,, ,,	

Span of 10′ 0″ *with Ends Continuous:*

Live Load stated in table	112 lbs. per sq. ft.	
Add Increase of 50 per cent. of 168 lbs....	84 ,, ,,	
Live load =	196 ,, ,,	

Should L.C.C. Regulations have to be adhered to the limiting effective depth is equal to 1/20th of the span, and for continuous spans the tabulated loads may be increased by 25 per cent. of the Live and Dead Load.

PARTICULARS REQUIRED

FOR

TENDERING.

1. Purpose for which floor is required, approximate total area and height from ground.
2. Superimposed load per square foot.
3. Clear span between the beams or walls.
4. Have steel beams to be encased for fireproofing? If so, the minimum thickness of concrete.
5. Distance between floor level and top and bottom flange of beams.
6. Whether surface finish has to be included for or special finish to soffit and class of same.
7. Whether any special local regulations have to be considered.
8. Nearest Railway Station and approximate distance from Station to site.
9. For cases where spans are variable a general plan is essential, and if required we are prepared to furnish complete structural designs for main beams and columns in Reinforced Concrete or Steelwork.

Metchim & Son, Westminster. 10/22/45135.